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(56) Documents Cited  
EP 1029564 A1 DE 029606965 A  
DE 019856652 A1 US 4677328 A

(58) Field of Search  
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(54) Abstract Title  
**Wheel generator for skateboards**

(57) A generator 3 is disclosed, suitable for bicycles, tricycles, scooters, skateboards and similar recreational vehicles 1 intended for fun or convenience on short-distance travel. The generator 3 comprises a ring magnet 2 and a coil 31, and can provide power for a number of light emitting diodes (LEDs) 14 arranged according to any design. The magnet 2 is mounted on a shaft 111 of a wheel 11 of the skateboard 1. When the wheel rotates, the magnet induces a voltage in a coil 31; current passes through wires 311 and 312 to connections 141 and 142 for the LEDs.

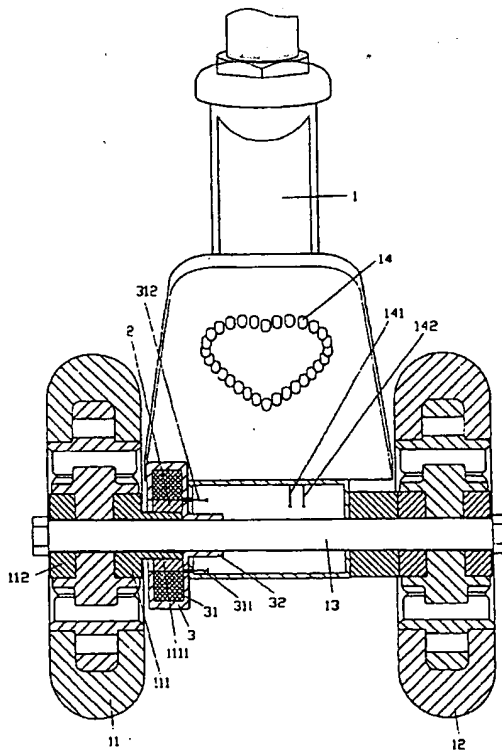


FIG. 1

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## TITLE: VEHICLE ELECTRICAL GENERATOR

## Background of the Invention

## Field of the Invention

This invention relates to an electrical generator, and more particular to a  
5 vehicle generates electricity by rolling the wheels.

## Description of the Prior Art

There are various kinds of recreational vehicles, such as skateboards,  
tricycles or bicycles for fun or convenience of short distance travel. Some of  
the vehicles are equipped with a generator to generate electricity for illumination  
10 purpose. However, this generator can provide only to some illumination parts,  
and is not able to provide other devices, which requires electricity to operate, this  
design is not attractive.

A modernized design was invented, which is equipped with many  
auxiliaries, such as horns, lights, etc., however, these also require many wires.

## 15 Summary of the Invention

It is the primary object of the present invention to provide a renovated  
vehicle electrical generator, which is able to provide electricity itself for  
auxiliaries.

It is another object of the present invention to provide a renovated vehicle  
20 electrical generator, which is economical in produce.

It is a further object of the present invention to provide a renovated vehicle  
electrical generator, which is easy to operate, and able to provide a safety signal  
for the users.

## Brief Description of the Drawings

FIG. 1 is a front view of a vehicle incorporated with the present invention, with partially sectioned;

FIG. 2 is an enlarged view of the present invention; and

5      FIG. 3 is a perspective view of a second embodiment of the present invention.

## Detailed Description of the Preferred Embodiments

A renovated electrical generator of the present invention, as shown in FIGS. 1 and 2, comprises a body 1 seating on top of a shaft 13, when wheels 11 and 12 are rolling, electricity is generated. The body 1 may be a scooter, a tricycle or a  
5 bicycle.

The body 1 has a load 14 which may be in any kind of drawings formed by a set of diodes, or a sounding equipment powered by electricity. The design is limited to any particular shape or device. In this case, illuminating diodes are adopted as the load 14, which has a pair of feet 141 and 142 connected to the  
10 generator 3, shafts 111 and 112 of the wheel 11 are made of plastic material with an isolating sleeve 1111 extending from one side of the shaft 111 for a magnetic ring 2 to sleeve thereon.

The generator 3 has an inductive coil 31 with a positive wire 311 and a negative wire 312 extending from two ends thereof, and a barrel 32 extending  
15 outwardly.

To assemble, the generator 3 is slid onto the shaft 13 of the wheels 11 and 12 with the barrel 32, whereas the magnetic ring 2 will extend into the inductive coil 31, thus when rolling the wheels 11 and 12, the magnetic ring 2 sleeved on the sleeve 1111 will rotate in the inductive coil 31, which produces electricity and  
20 is transformed through the positive and the negative wires 311 and 312 to the two feet 141 and 142 of the load 14.

The present invention may be applied on the vehicle body 4, as shown in FIG. 3, which is to insert the generator set 3 on to a shaft 42 of a wheel 41, and the magnetic ring 2 on a sleeve 4111 of a shaft 411 of the wheel 41, when rolling  
25 the wheel 41, the magnetic ring 2 on the sleeve 4111 rotate in the inductive coil

31, simultaneously, the electricity produced thereafter is transferred through two feet 431 and 432 to a load 43.

Further, the wheels 11, 12, 41 and generator 3 all are in set, when consumers purchased the product, all they have to do is to follow instruction to connect the  
5 feet 141, 142, 431, 431 of the load 14 to the positive wire 311 and the negative wire 312, which simplifies the assembly procedure and minimizes any wrong doing.

I claim:

1. A vehicle electrical generator comprising a magnetic ring on one side of  
a wheel, and a generator with an inductive coil on a shaft of the wheel  
body corresponding to the magnetic ring, when rolling said wheel, said  
5 magnetic ring rotating simultaneously producing electricity to energize a  
load.

CLAIMS

1. A vehicle electrical generator for mounting to a wheel defining a hub having secured therein a first journal bearing that is hollow for rotatable  
5 journaling therein of a shaft, the electrical generator comprising a second journal bearing mounted in a pair with the first journal bearing and including an insulating sleeve protruding outwardly from a said wheel for encircling a said shaft and having secured to its exterior a magnetised annulus whereby a said wheel, and hence the magnetised annulus, are  
10 rotatable relative to a said shaft, the generator including, disposed generally concentrically with and spaced radially outwardly from the magnetised annulus, an inductive coil that is securable relative to a said shaft; and the generator also including electric wires for transmitting electricity generated thereby to energise a load.  
15
2. A vehicle electrical generator assembly comprising the generator claimed in Claim 1, a wheel on which the generator is mounted and a first journal bearing mounted in a pair with the second journal bearing of the generator.  
20
3. A vehicle electrical generator substantially as described herein with reference to and as illustrated in the accompanying drawings.

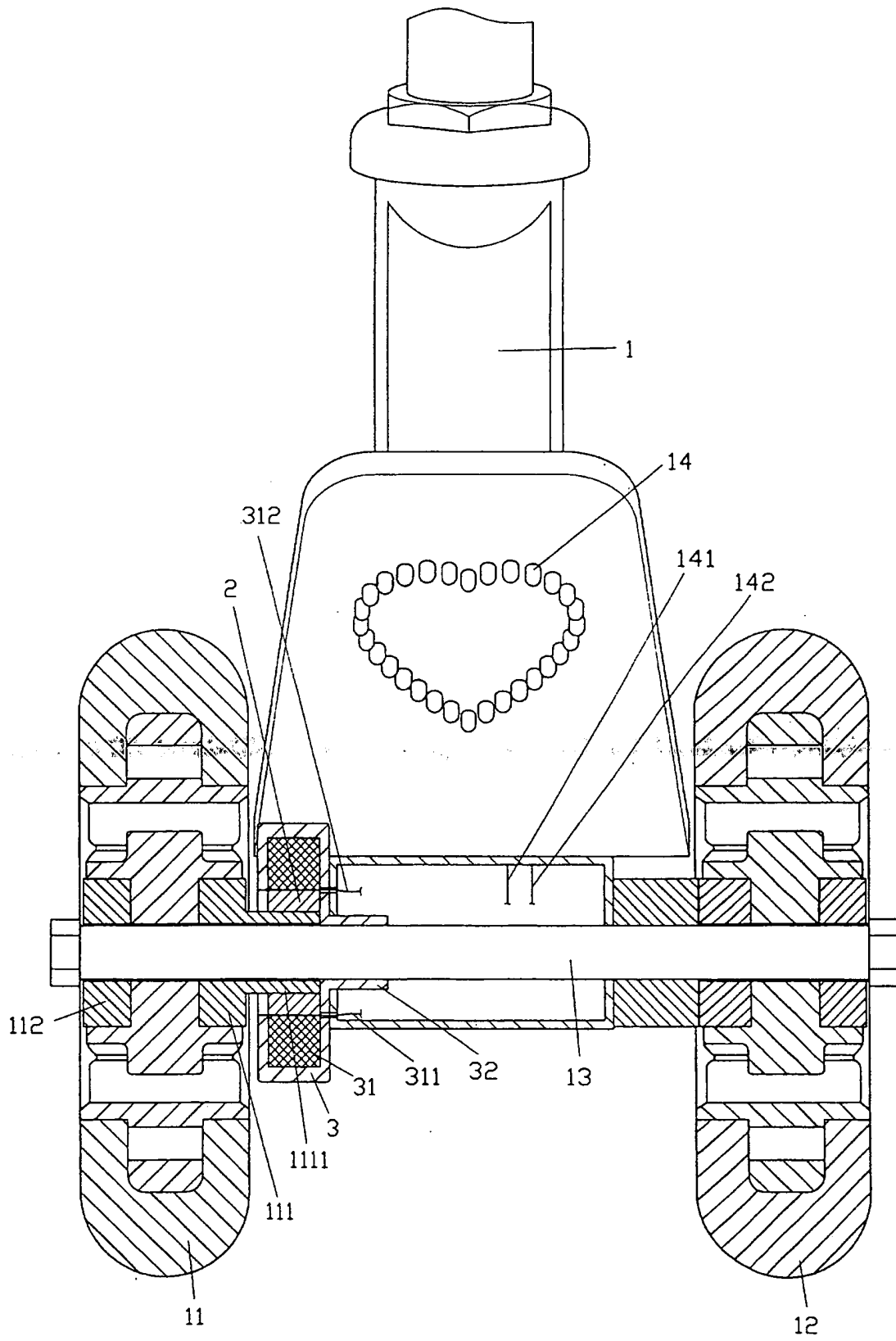


FIG. 1



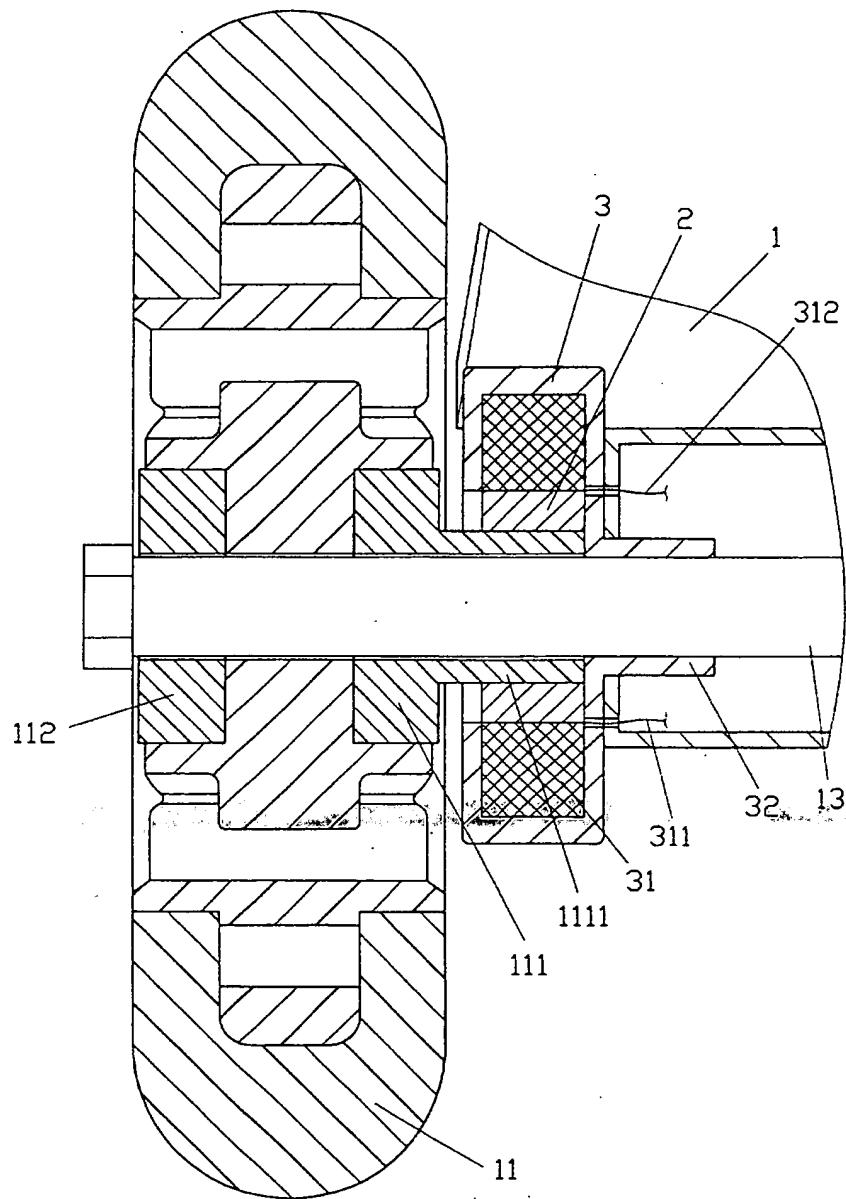


FIG. 2

3/3

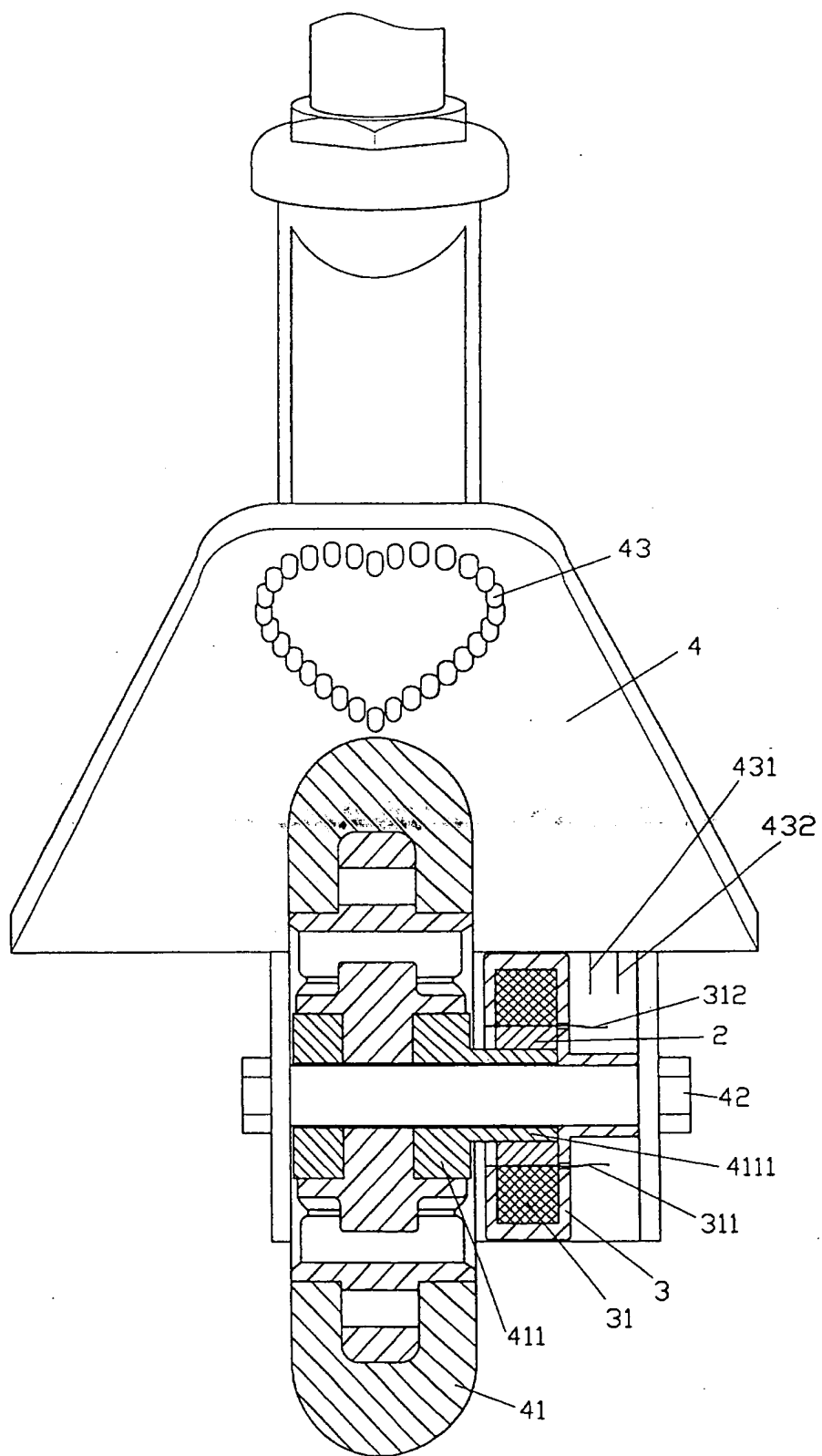


FIG. 3



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Claims searched: 1

Examiner: Bill Riggs  
Date of search: 31 January 2002

## Patents Act 1977 Search Report under Section 17

### Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:  
UK CI (Ed.T): A6D DSK, H2A ARX3A  
Int CI (Ed.7): A63C 17/26, B62J 6/12, H02K 7/18  
Other: Online databases: EPODOC, JAPIO, WPI

### Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	DE 29606965 U1 (Hsu) see particularly English language abstract and fig.	1
X	DE 19856652 A1 (Mueller) see particularly English language abstract and figs.	1
A	EP 1029564 A1 (Omron) see whole document	
X	US 4677328 A (Kumakura) see particularly col.3 ll.20-25, col.4 ll.11-20 and fig.1	1

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.